

ABSTRACT OF THE DISCLOSURE

Fuse-type and antifuse-type semiconducting-organic-polymer-film-based
5 memory elements for use in memory devices are disclosed. Various embodiments of the
present invention employ a number of different techniques to alter the electrical conductance
or, equivalently, the resistance, of organic-polymer-film memory elements in order to produce
detectable memory-state changes in the memory elements. The techniques involve altering
the electronic properties of the organic polymers by application of heat or electric fields, often
10 in combination with additional chemical compounds, to either increase or decrease the
resistance of the organic polymers.